

ENERGY ANALYSIS AND POLICY, GRADUATE/ PROFESSIONAL CERTIFICATE

The Energy Analysis and Policy certificate (EAP) provides students with the opportunity to customize their graduate experience, adding energy training to any graduate degree program offered at the University of Wisconsin–Madison. Graduate students can complete the EAP certificate by selecting courses that meet both their degree and EAP requirements. As such, most students can add EAP onto a degree without any additional time or cost. PhD students may use the EAP certificate to fulfill their doctoral breadth requirement (<https://policy.wisc.edu/library/UW-1200/>), though in this case courses may not be double-counted for major requirements. Many prospects choose UW–Madison specifically to participate in the EAP program, while others join EAP upon learning about it after matriculation.

Since its formation in 1980, EAP has provided students with the skills and knowledge needed by professionals in government, energy companies, consulting firms, and other organizations. EAP draws students from across campus. Particularly large student groups from public policy, environmental studies, engineering, and urban planning pursue the certificate because of the program's interdisciplinary curriculum which considers a wide range of technical, economic, political, and social factors that shape energy policy formulation and decision-making.

ADMISSIONS

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Applicants may apply to the Energy Analysis and Policy certificate concurrently with their graduate school application or once matriculated at UW–Madison. Acceptance into the certificate is contingent on enrollment in a graduate degree program.

While there are no prerequisites, it is recommended applicants have completed at least one college-level course in each of the following five subject areas:

- physical science (physics or chemistry);
- natural science (biology, environmental, geology or atmospheric and oceanic);
- economics;
- social sciences or humanities (besides economics); and
- calculus or statistics.

HOW TO APPLY

To declare the certificate, applicants must complete the online Energy Analysis and Policy (EAP) application form (<https://go.wisc.edu/EAP-apply/>), which includes the following elements:

1. Information on prior educational attainment
2. Information on degree program being pursued
3. A brief statement of interest in the program

4. For applicants to the Environment and Resources MS or PhD programs, the Energy Analysis and Policy certificate application provides a matching service with potential thesis advisors.

All Graduate School students must utilize the Graduate Student Portal in MyUW to add, change, or discontinue any graduate/professional certificate. To apply to this certificate, log in to MyUW, click on Graduate Student Portal, and then click on Add/Change Programs. Select the information for the certificate for which you are applying. Select the information for the Energy Analysis and Policy certificate. Professional students in the careers of Law, Medicine, Pharmacy, and Veterinary cannot add the certificate in the Graduate Student Portal, and should contact the program for more information.

DEADLINES

Applications may be submitted at any time, but applicants are encouraged to apply before the end of their first year in graduate school to ensure timely completion of certificate requirements. Students may take courses that meet certificate requirements prior to completing their application.

REQUIREMENTS

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REQUIRED COURSES

Code	Title	Credits
Core		
Students must complete the following courses.		
ENVIR ST/ PUB AFFR/ URB R PL 809	Introduction to Energy Analysis and Policy	3
ENVIR ST/ PUB AFFR/ URB R PL 810	Energy Analysis and Policy Capstone	3
ENVIR ST 909	Professional Skills in Energy Analysis and Policy	1
Energy Analysis		
Students must complete one of the following courses:		3
A A E/ECON 371	Energy, Resources and Economics	
A A E/ENVIR ST/ POP HLTH/ PUB AFFR 881	Benefit–Cost Analysis	
AGROECOL/ ENVIR ST 724	Agroecosystems and Global Change	
ENVIR ST/ A A E/ECON/ URB R PL 671	Energy Economics	
BSE 460	Biorefining: Energy and Products from Renewable Resources	
CBE 512	Energy Technologies and Sustainability	
CBE 538	Processes for the Production of Renewable Fuels and Chemicals from Biomass	
CIV ENGR/ G L E 421	Environmental Sustainability Engineering	
CIV ENGR 423	Air Pollution Effects, Measurement and Control	

CIV ENGR 495	Sustainable Building and Materials
CIV ENGR/ G L E 535	Wind Energy Balance-of-Plant Design
CIV ENGR 729	Environmental Sustainability Tools
E C E 356	Electric Power Processing for Alternative Energy Systems
E C E 427	Electric Power Systems
E C E 714	Utility Application of Power Electronics
E C E 723	On-Line Control of Power Systems
ENVIR ST/ BSE 367	Renewable Energy Systems
E P D 731	Energy Efficiency in Buildings
GEOSCI/ ENVIR ST 411	Energy Resources
M E 461	Thermal Systems Modeling
M E 469	Internal Combustion Engines
M E 472	Energy, Sustainability, and Technology
M E/N E 565	Power Plant Technology
M E/CBE 567	Solar Energy Technology
N E 571	Economic and Environmental Aspects of Nuclear Energy

Energy Policy

Students must complete one of the following courses:		3
ENVIR ST/ GEOG 333	Green Urbanism	
ENVIR ST 349	Climate Change Governance	
ENVIR ST/ ATM OCN 355	Introduction to Air Quality	
ENVIR ST/ GEOG 439	US Environmental Policy and Regulation	
ENVIR ST/ POP HLTH 471	Introduction to Environmental Health	
ENVIR ST/ POP HLTH 502	Air Pollution and Human Health	
ENVIR ST/ POP HLTH 739	Climate Change, Human and Planetary Health ¹	
ENVIR ST/ POLI SCI/ PUB AFFR 866	Global Environmental Governance	
LAW 848	Introduction to Environmental Law	
M H R 710	Challenges & Solutions in Business Sustainability	
URB R PL 551	Climate Action Planning: Sustainable Transportation	

Total Credits

13

¹ Because this is a 2-credit course, students selecting this course option are required to take an additional 1-credit course in consultation with the certificate coordinator.

Course Categories

Courses in the Energy Analysis category involve quantitative analysis of the technical and economic factors that shape society's use of energy resources. Courses in the Energy Policy category involve the social,

political, and environmental factors that underly decision-making around energy choices. Some courses listed in the Energy Analysis category may have some overlap with the Energy Policy category, and vice versa.

Students who wish to use a course for the opposite category that it is listed in should submit a written request to the Energy Analysis and Policy Academic Coordinator or Faculty Chair. Students should provide a course syllabus and a written justification for why the course should qualify for the other category in the context of their overall course of study, with the Energy Analysis and Policy Chair making the final decision on whether to accept the request.

The courses listed in the table are offered regularly. Other courses (with approval by the Energy Analysis and Policy faculty program committee) may fulfill one of minor requirements (see note under Other Qualifying Courses).

Other Qualifying Courses

Because the scheduling of the preceding courses is coordinated with the needs of their home departments, the program cannot guarantee specific courses will always be offered at specific times or rotations. Each semester, program faculty will consider other qualifying courses for the upcoming semester that fulfill one of the categories above. Once approved, the Energy Analysis and Policy Academic Coordinator will distribute a list of course offerings for the upcoming semester to students in the certificate.

Course Substitutions

Students may propose course substitutions by contacting the Academic Coordinator or the Faculty Chair. The Energy Analysis and Policy Chair makes the final decision. Students should provide a course syllabus and a letter of endorsement from the faculty member teaching the course, preferably before the start of the course. The substitution proposal will be considered based upon the following criteria:

1. extent to which the course content is devoted to energy,
2. rigor of methodology applied to the course material and
3. context of the class with respect to the student's study plan.

LEARNING OUTCOMES

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1. Demonstrate an awareness of the variety of energy sources and energy conversion technologies and master the language and scientific basis required to engage in the analysis of energy topics.
2. Analyze and compare the sustainability of different energy sources/technologies from the perspective of engineering, economics, environmental impacts, and security of supply.
3. Demonstrate an awareness of the socio-political institutions that govern the energy industry and the societal and social justice impacts of energy policies.
4. Prepare for energy-related career pathways in industry, government, academia, NGOs, regulatory agencies and energy consulting. Gain experience by participating in "real-life" projects for actual clients in multidisciplinary student groups.